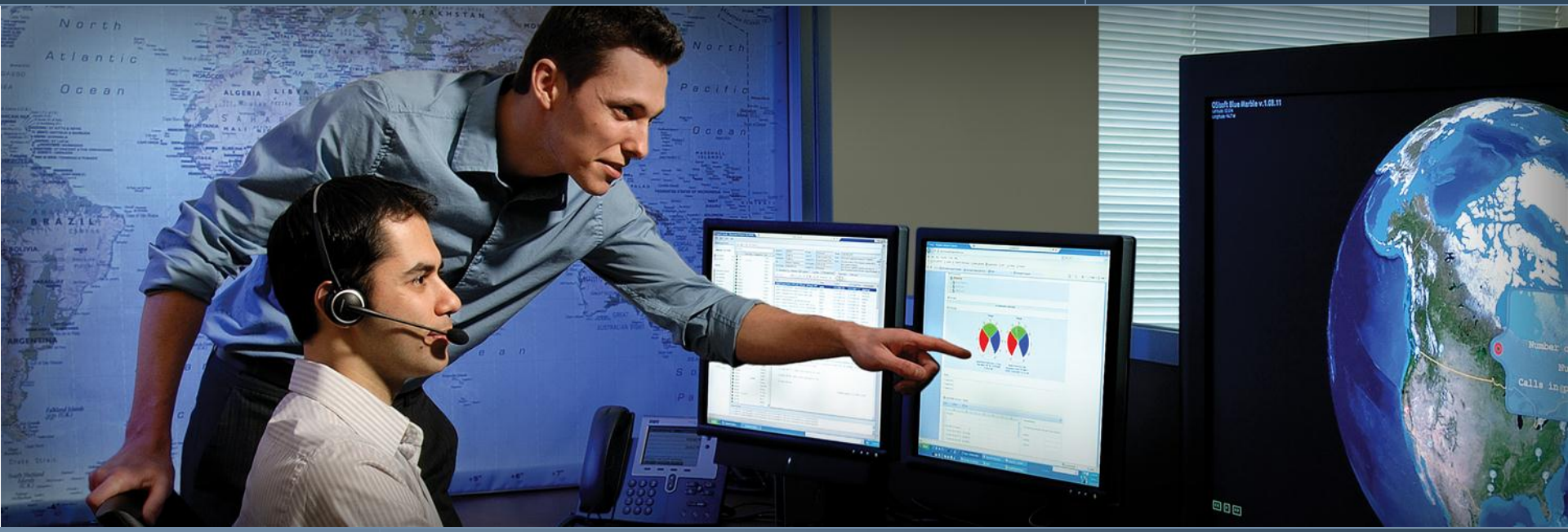

Enterprise PI Enabling an Integrated Manufacturing Landscape

Barry Higgins – Janssen Biologics Ireland

Agenda

- Background
- Enabling MES
- Introducing PI Asset Framework (PI AF)
- MES data interface using PI AF

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About Janssen

- 3 Main areas:
  - Consumer
  - Medical devices & diagnostics
  - Prescription Products
- JSC API Supply Chain.
  - Chemicals – 6 sites
  - Biologics – 5 sites

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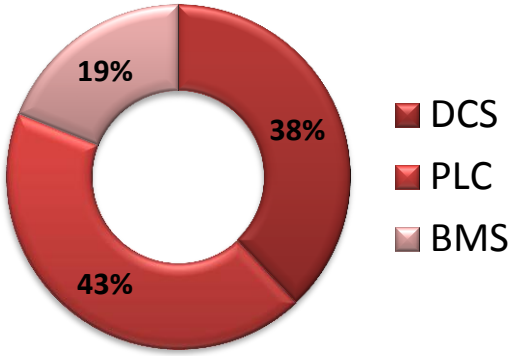
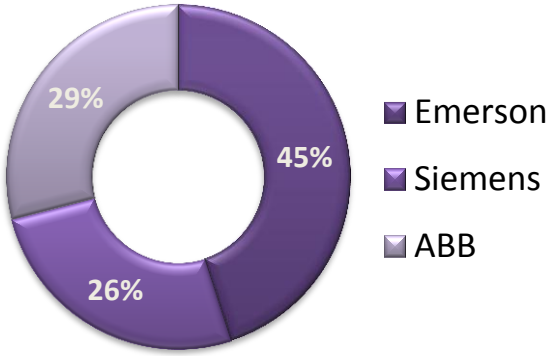
Control Systems Overview

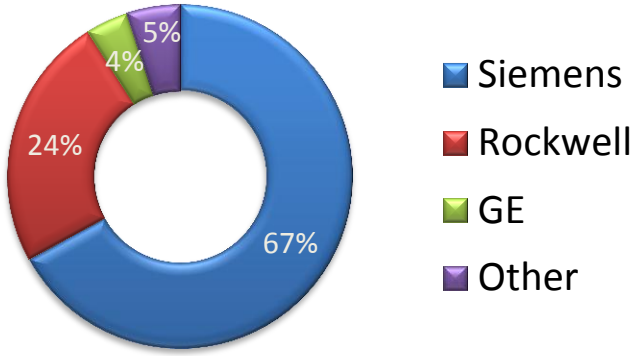
JSC API - PCS Landscape

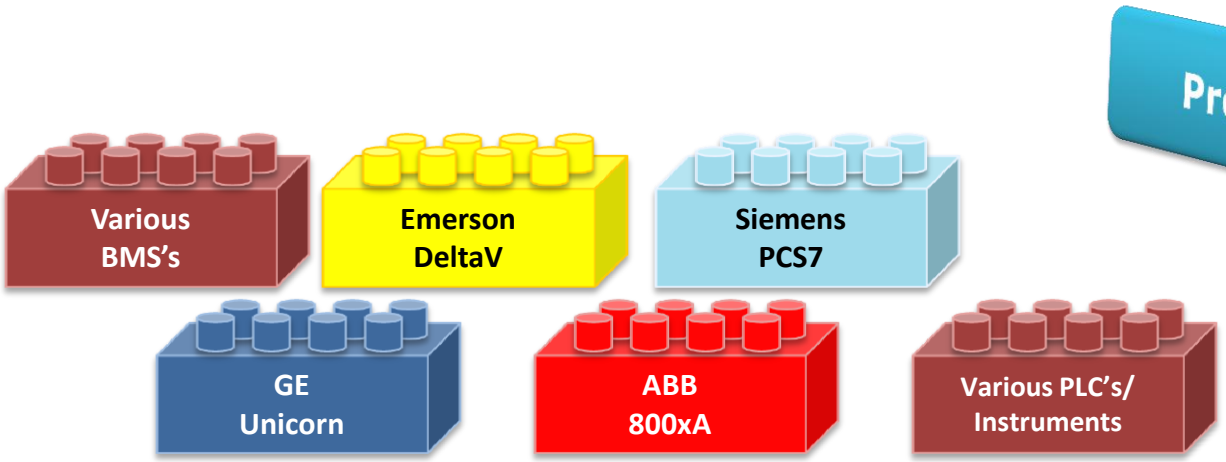


JSC API – DCS Vendors



JSC API – PLC Vendors

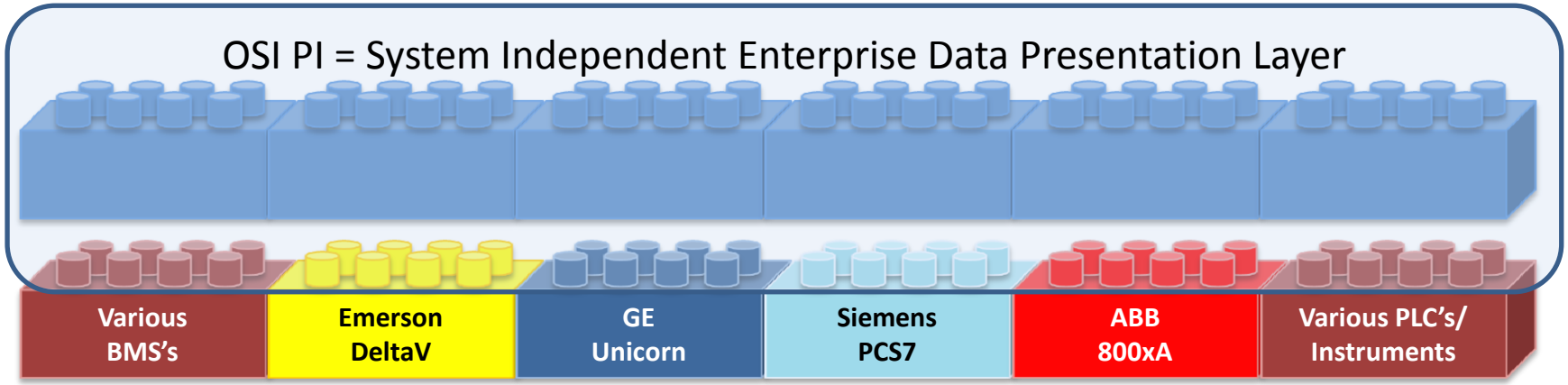




Process Control System(s)

Why do we need the OSIsoft PI System?

- Very disparate systems landscape
  - ranging from distributed process control systems with inherent historian capability to stand-alone instruments with paper printouts
- Require capability to capture and aggregate data for visualisation, reporting & analysis

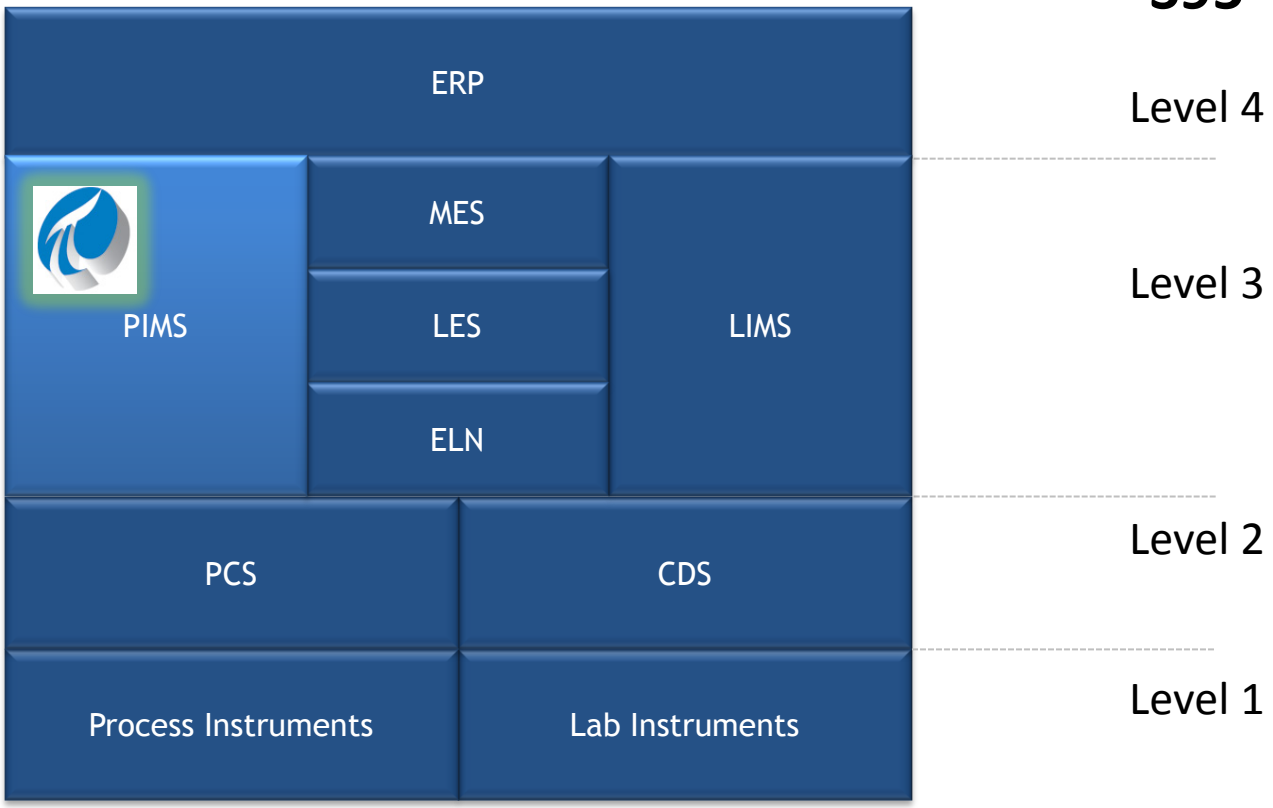


BMS – Building Management System
PLC – Programmable Logic Controller

Philosophy for OSIsoft PI System in J&J Pharma

- Get away from counting “tags”
- Collect all data (GMP & non-GMP)
  - Process, Alarm & Events, Batch Events
- Deliver a consistent infrastructure globally
  - no differentiation from Commercial to R&D
- Provide common visualisation (thick & thin clients)
  - Consolidated data visualization for improved process monitoring and historical batch analysis
  - Consolidated alarm reporting for building management, process control, laboratory equipment, utility systems, warehouse equipment…
- Targeted compliant reporting (RtReports)
  - Autoclaves, washers (non-MES related!)

Systems Landscape Positioning



CDS: Chromatography Data Software
ELN: Electronic Laboratory Notebook
ERP: Enterprise Resource Planning
LES: Laboratory Execution System
LIMS: Laboratory Information Management System
MES: Manufacturing Execution System
PCS: Process Control System
PIMS: Production Information Management System

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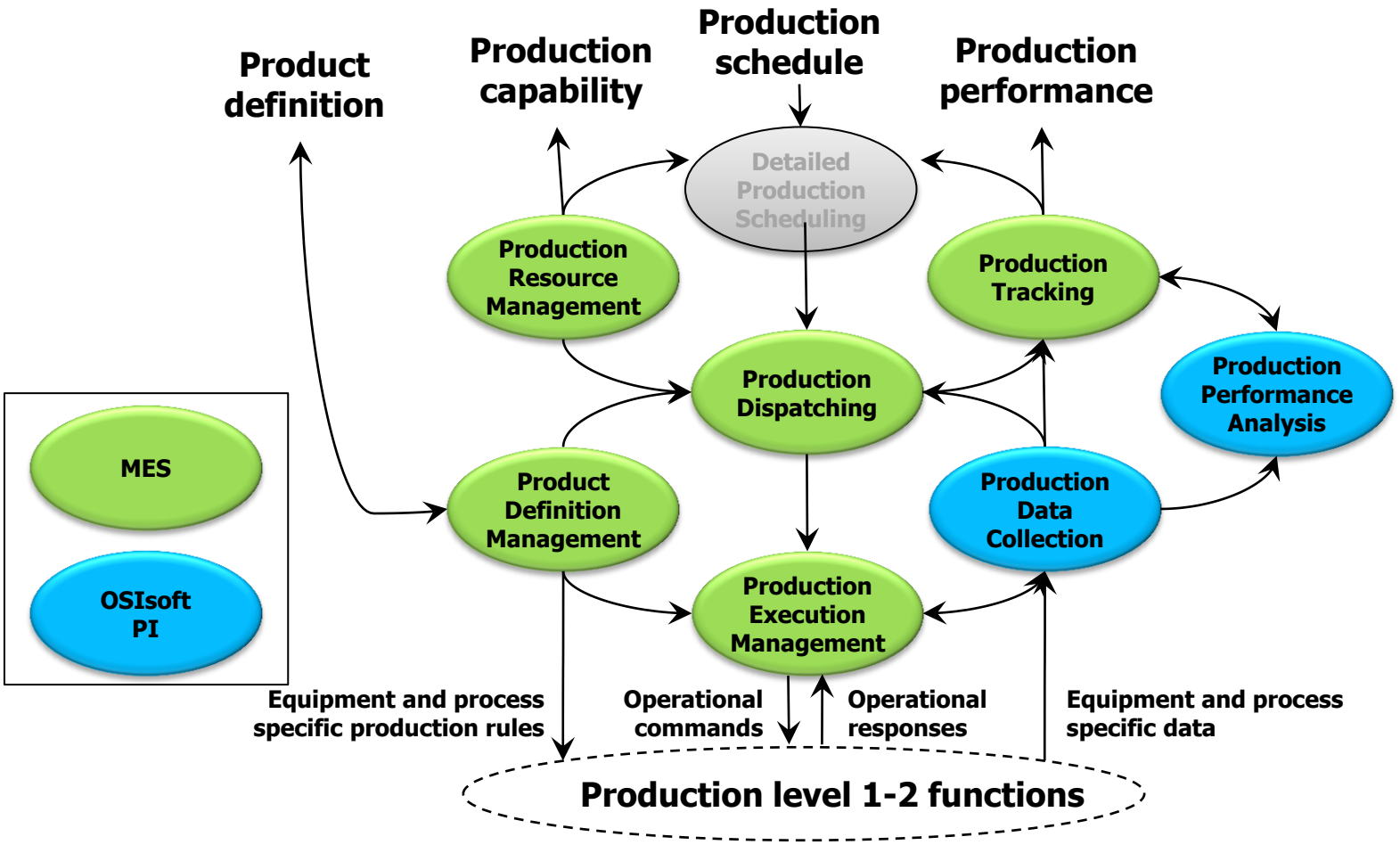
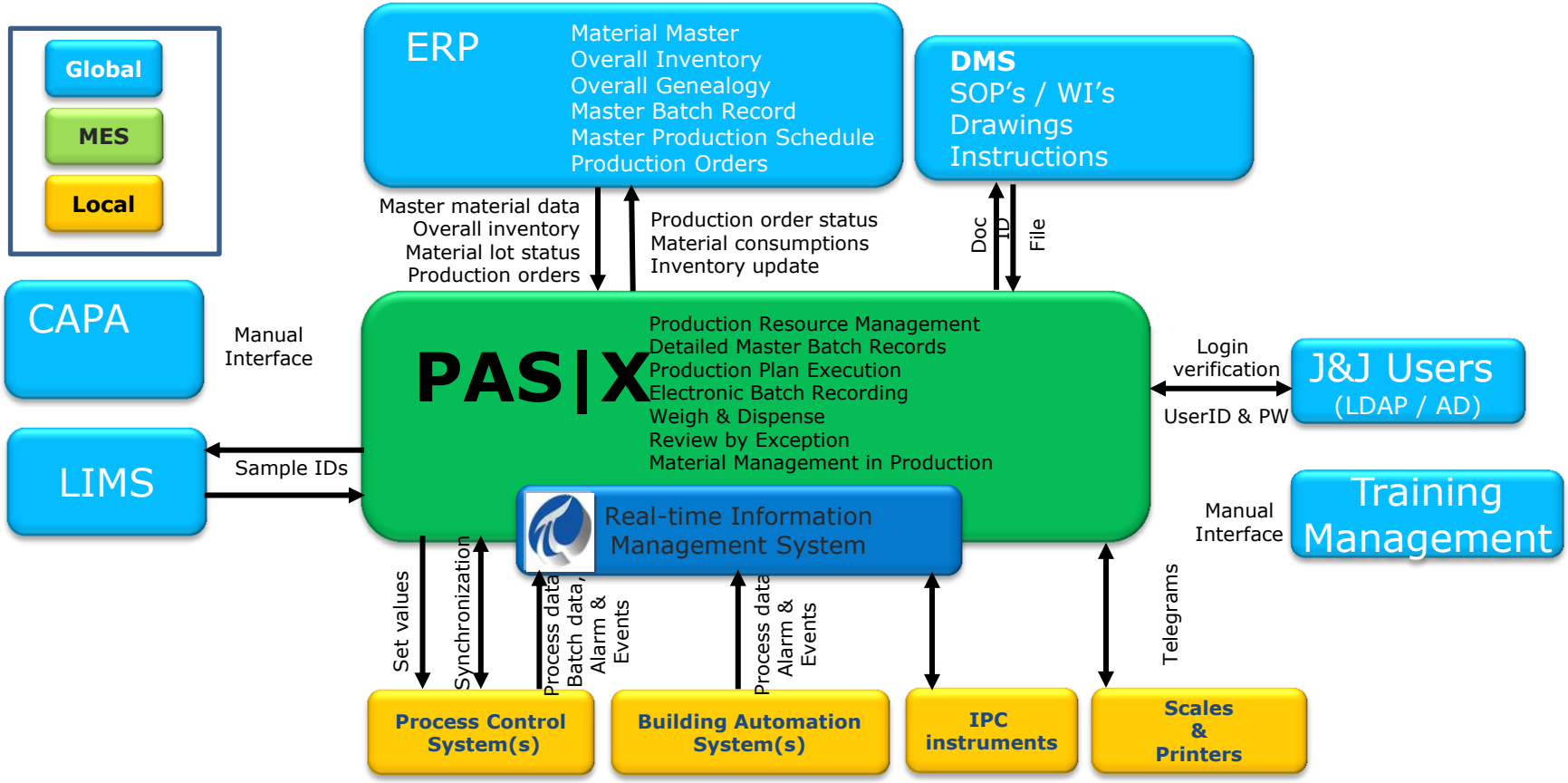
Where does the PI System fit ?

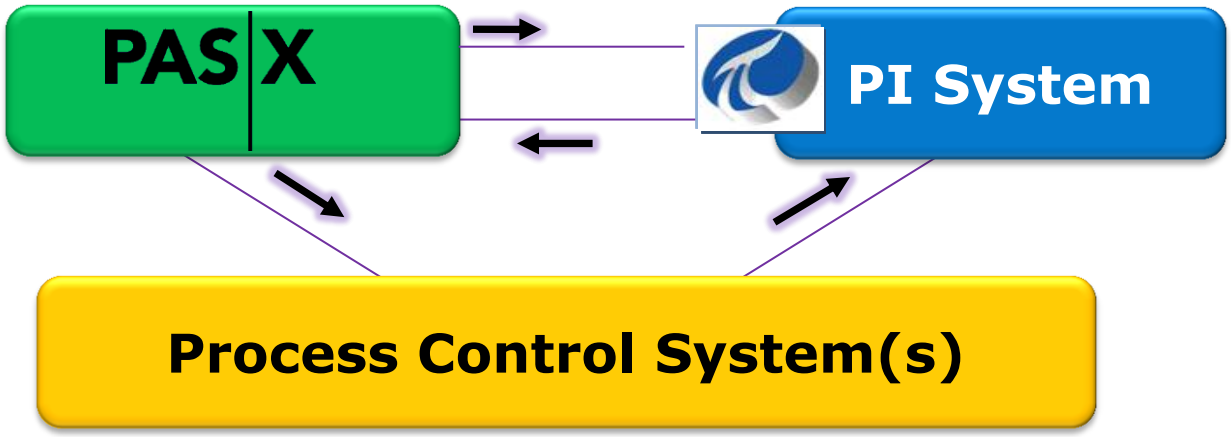


Enabling MES



The New Trinity

- PAS|X Commands & setpoints to Process Control System
- Process Data collected in the PI System
- The PI System data referenced in the PAS|X EBR
- PAS|X EBR batch execution data referenced in the PI System.



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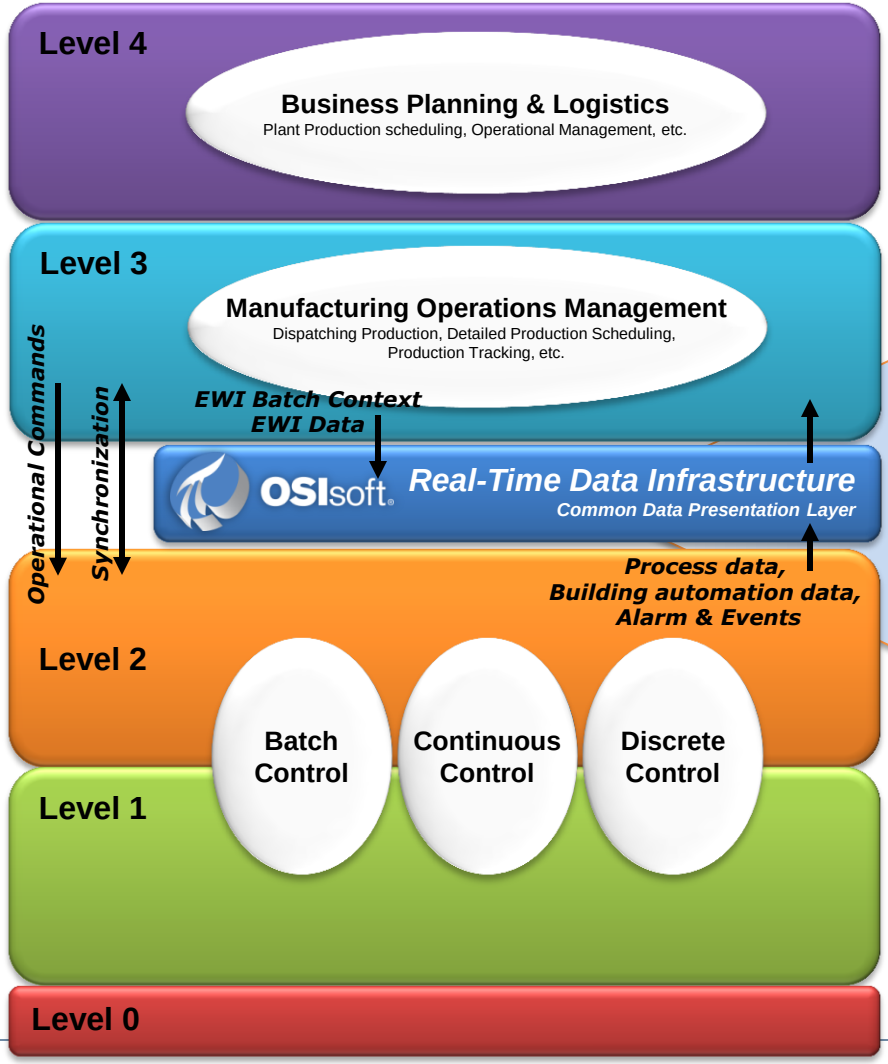
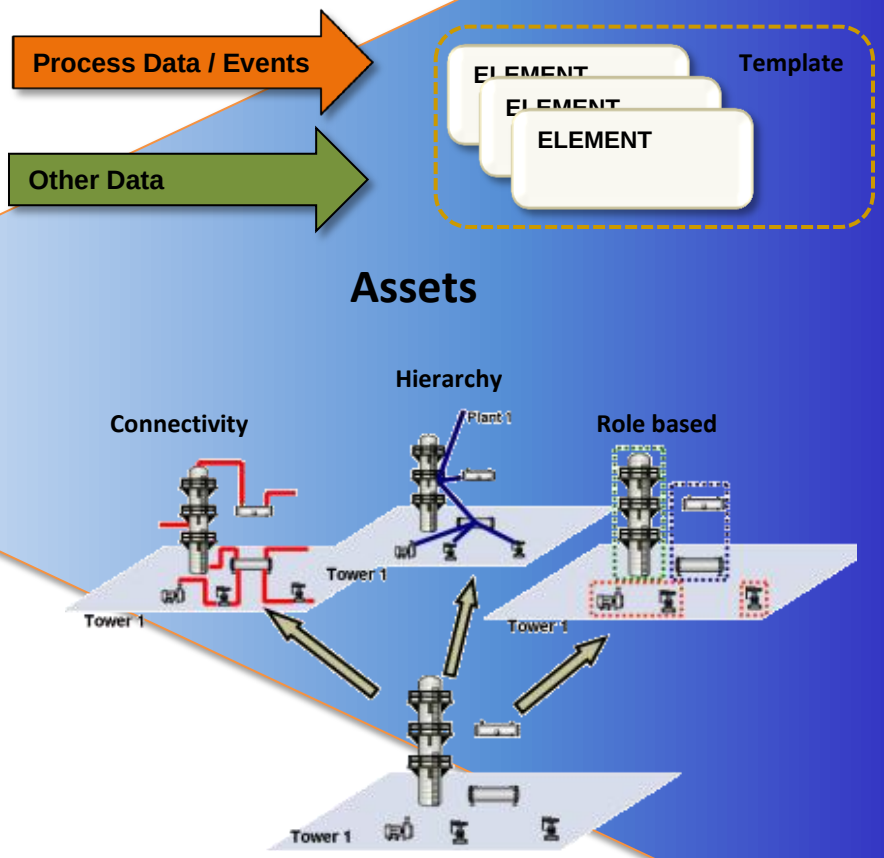
Real-Time Data Infrastructure: A Key Enabler

S95 Model



Template Based Data Abstraction Layer

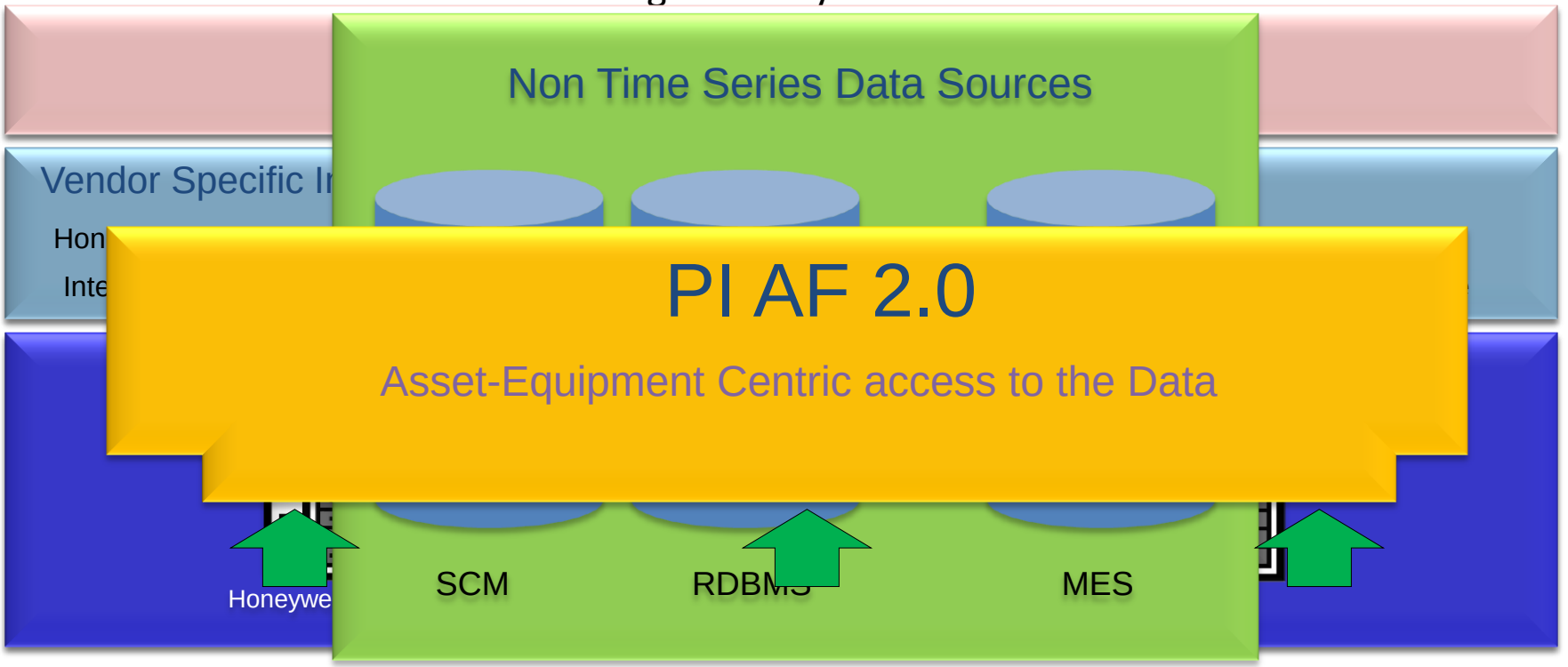


Collections of **reusable** Elements

Value now. Value over time.

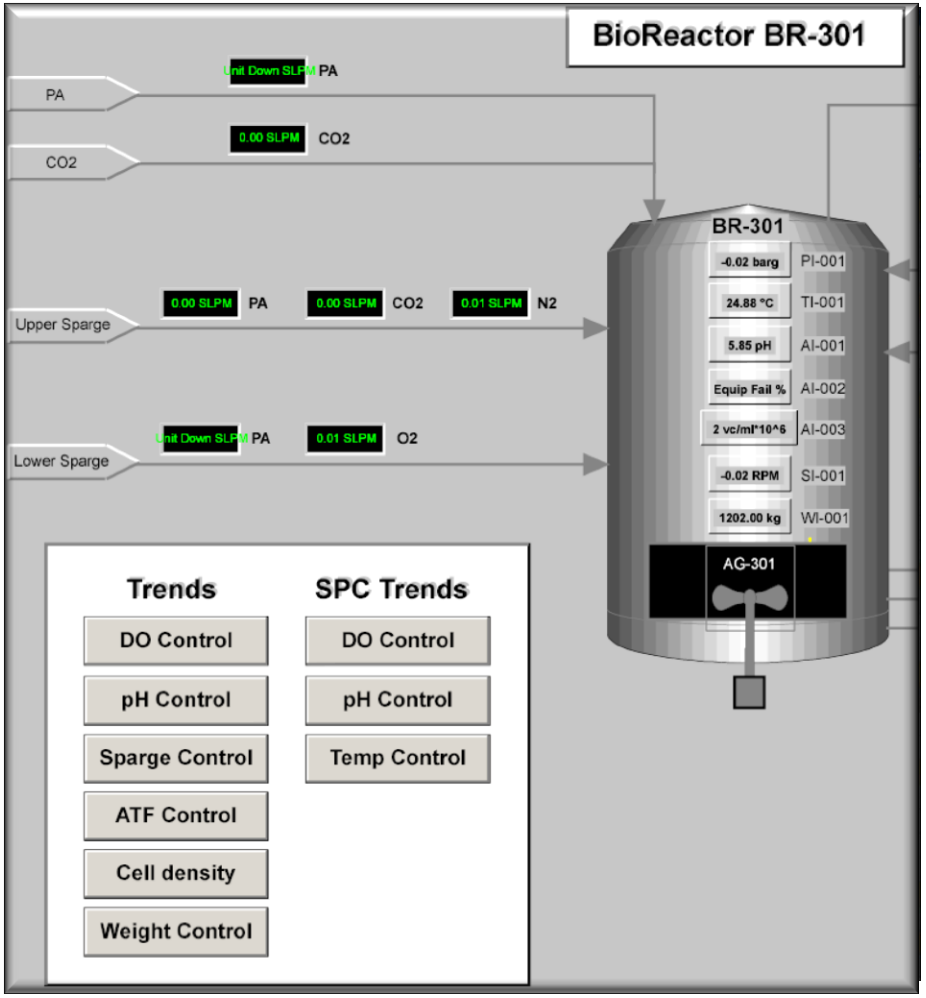
PI Asset Framework

- Data structured and organized by asset



Introducing PI Asset Framework

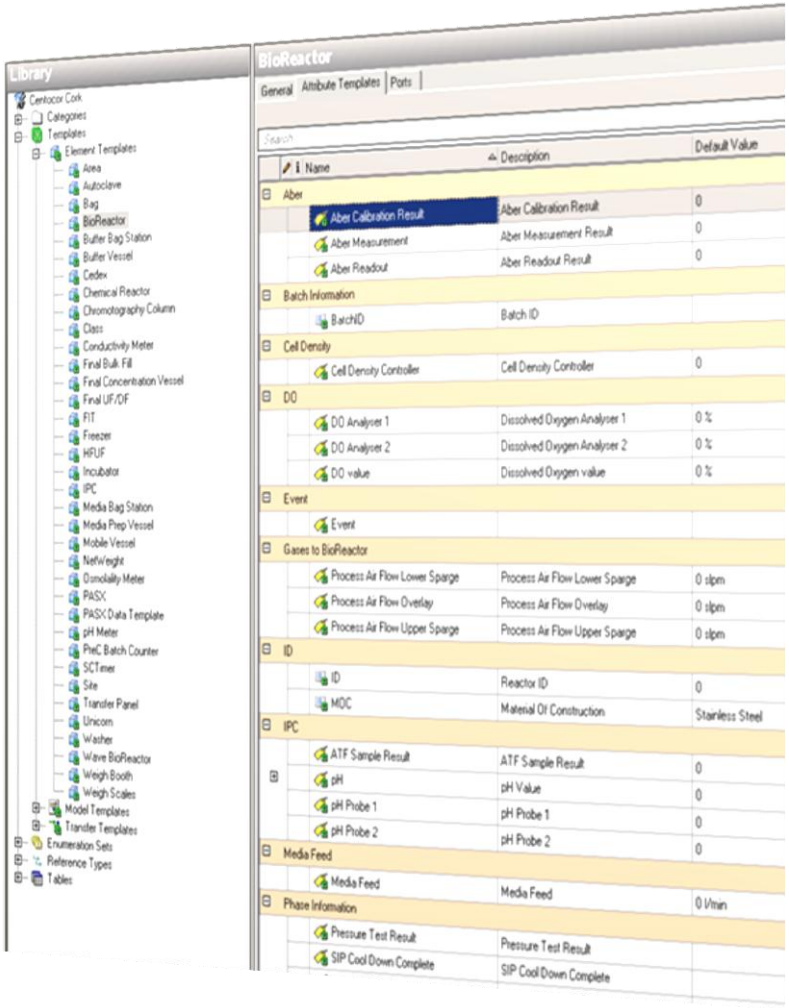
- What is PI Asset Framework ?
  - "Process Object Models" which represent the logical components in your process.
  - Allows data from multiple PI servers to be combined in one common view.
  - Allows the user access to non PI data sources, e.g. external databases.
  - Allows process specialists to build process relative models without the need for extensive PI System knowledge.



PI AF in Janssen

- Super Class concept.
  - Class based templates – built in conjunction with process and subject matter experts.
  - Only process critical information grouped together in a logical model.
  - Ensures that the entire organisation have a common taxonomy.

- PAS|X \ PI AF
  - Using Unit based templates allows us to build unit based MBR elements that can be applied on other sites.



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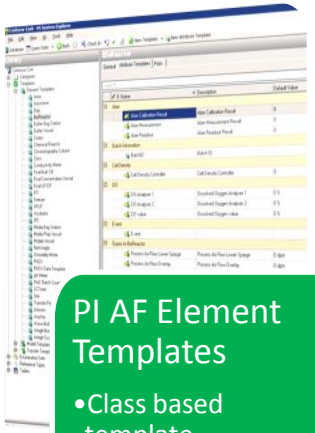
From PI AF to MES and back

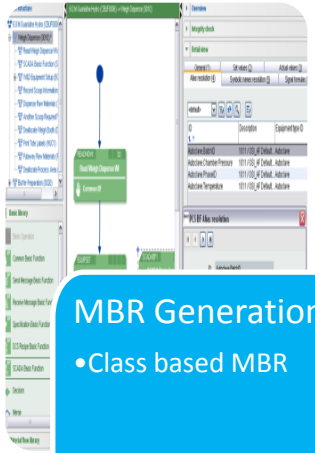


PI AF Element Templates

- Class based template.
- Unit Elements created from template.

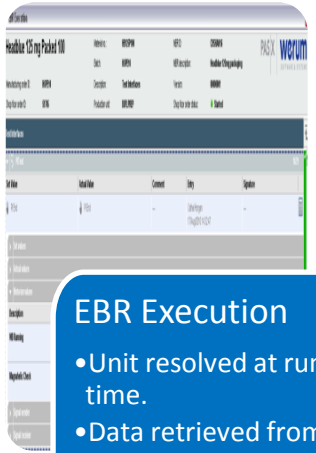
Upload from PI AF

- Class based PCS MBR elements
- Building blocks for MBR modellers



MBR Generation

- Class based MBR



EBR Execution

- Unit resolved at run-time.
- Data retrieved from PI AF Unit Element

Acknowledgements:

J&J:
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Todd Brown
Marc Gallant
Glenn Hummell
Chris Nelson

TQS:
Tom Quilty
Cathal Horgan

Thank you

777 Davis St., Suite 250 San Leandro, CA 94577

The New Trinity!

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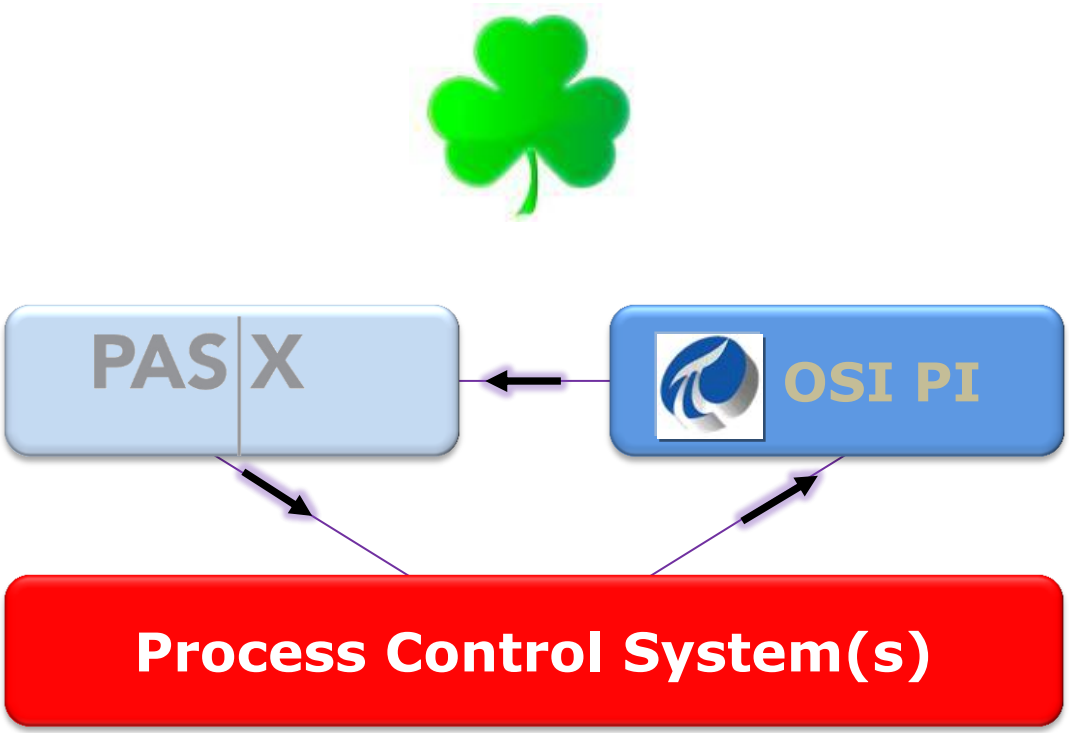
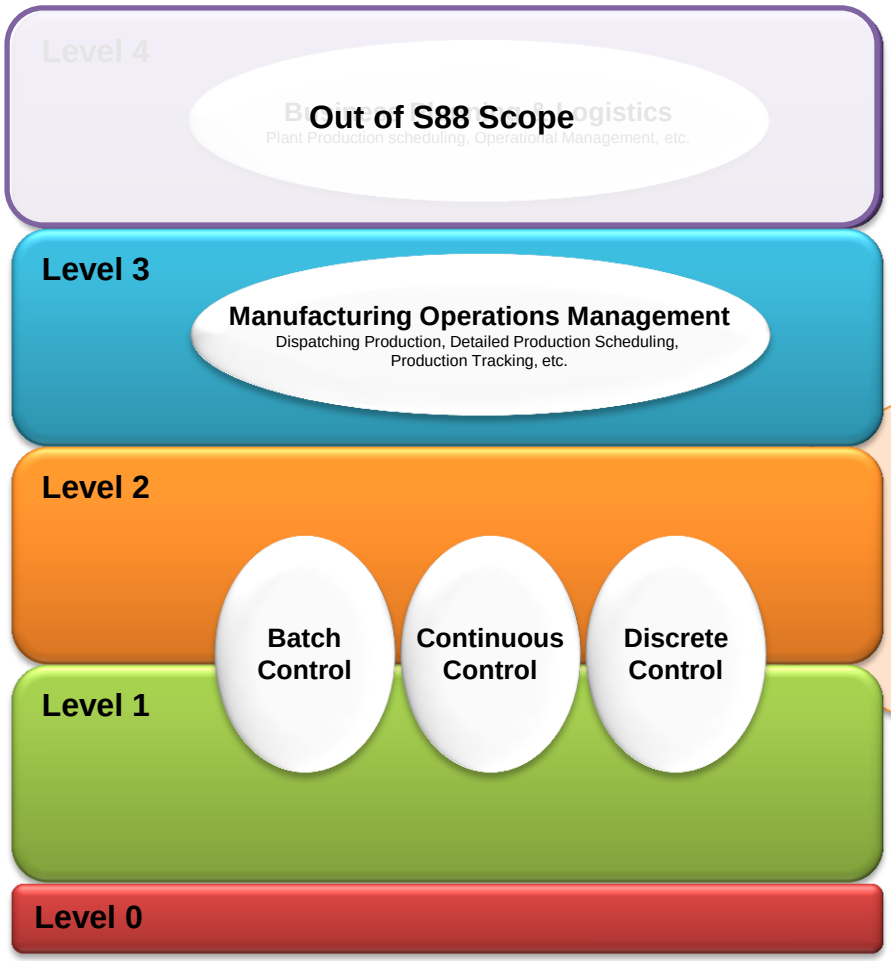
- Process Data collected in OSI PI
- OSI PI data referenced in the PAS|X EBR

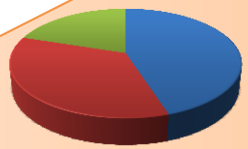


Challenges at Level 2: Variable Control System Landscape

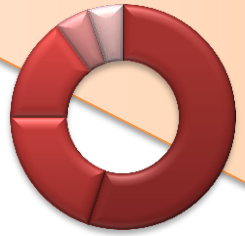


Variable PCS Landscape

Typical Process Control System Landscape



Typical PLC Vendors

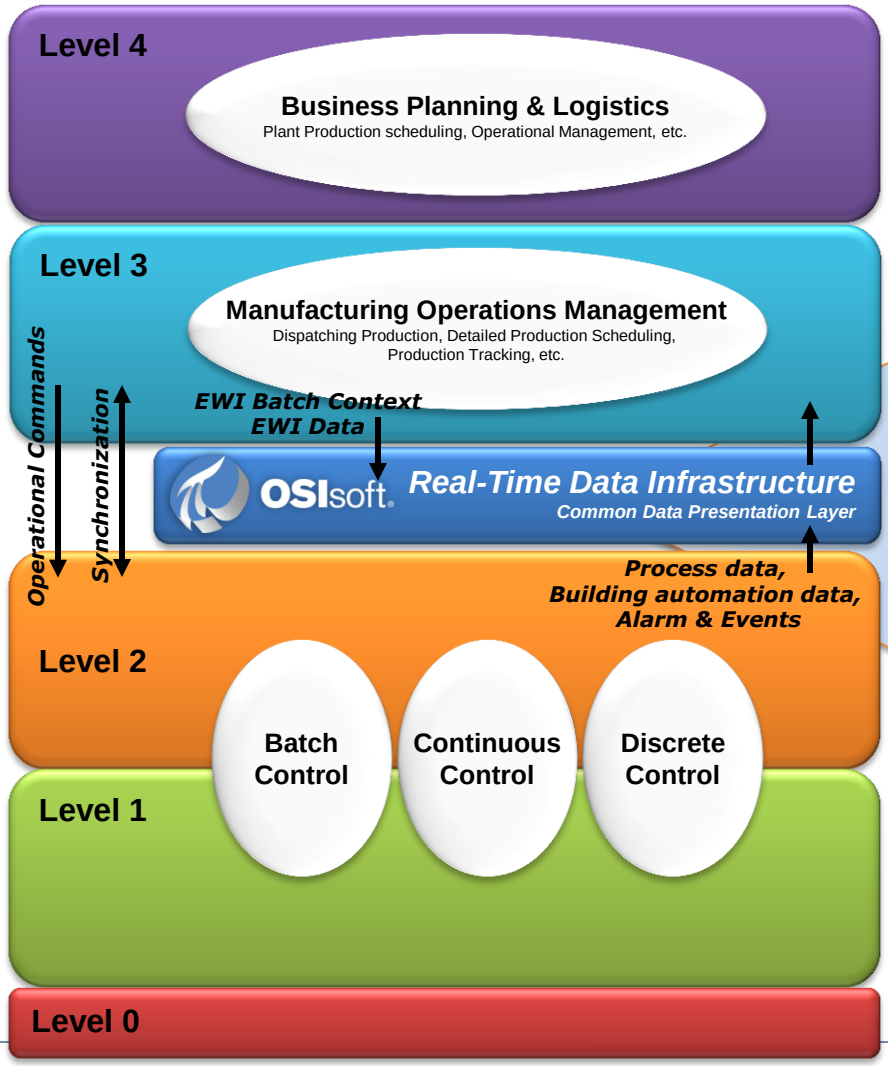


Typical DCS Vendors

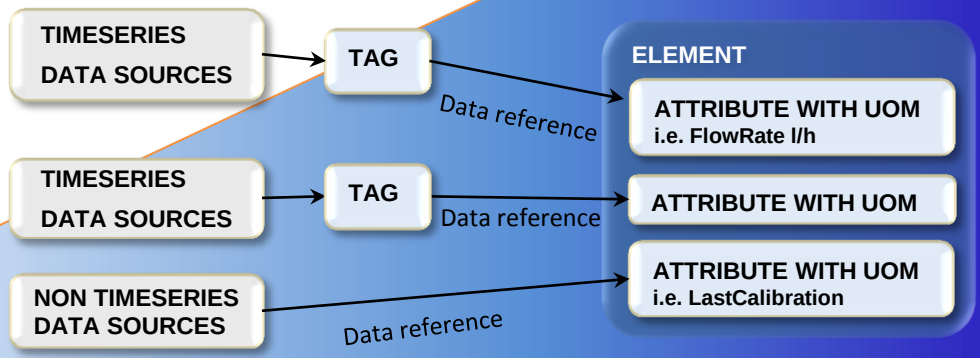
Value now. Value over time.

Real-Time Data Infrastructure: A Key Enabler

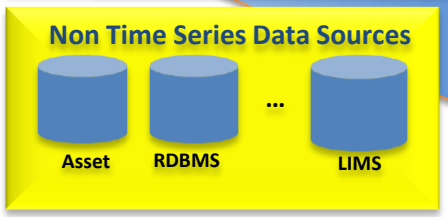
S95 Model



Link Templates to Plant Data



Asset/Equipment centric access to information



PI Server 1

PI Server 2

Value now. Value over time.

Real-Time Data Infrastructure: A Key Enabler

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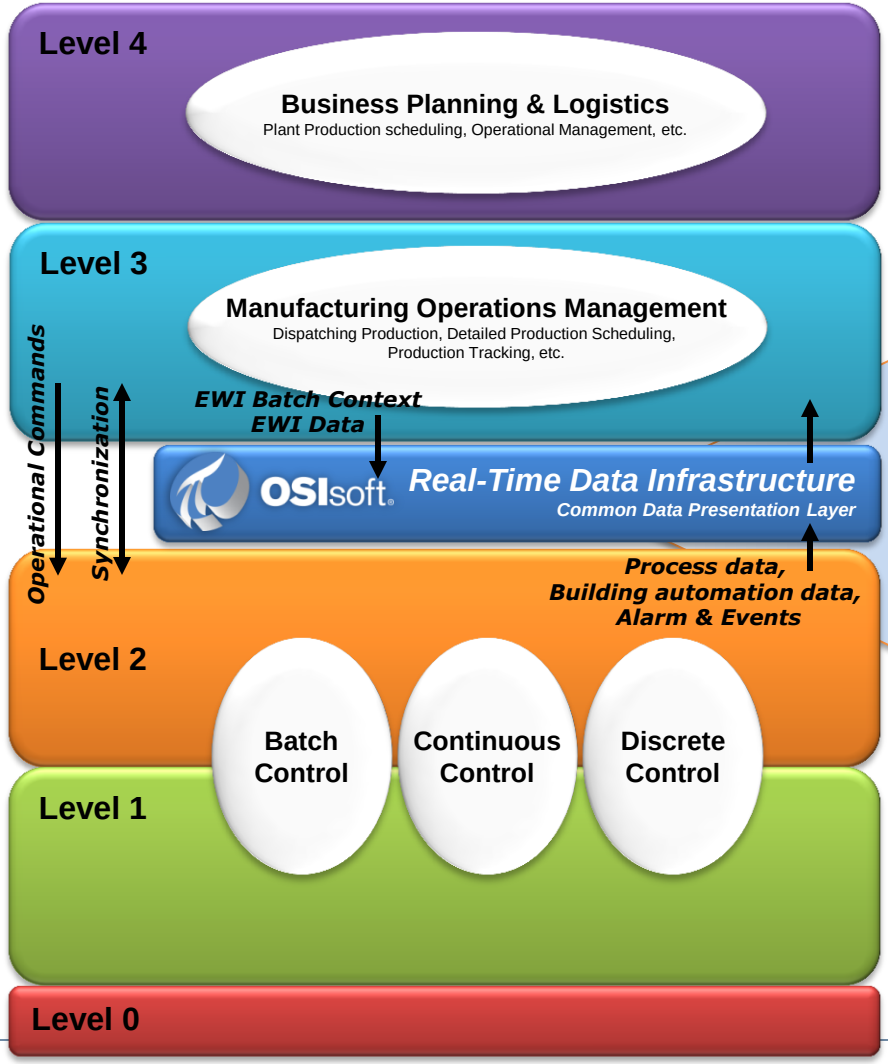
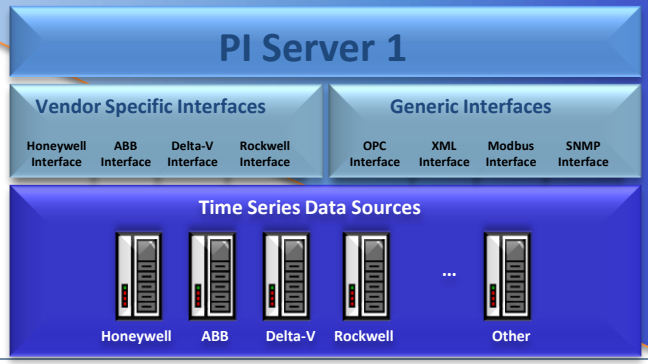


Common Infrastructure for Collecting Data

Process Control System Landscape with PI

- DCS
- PLC
- BMS



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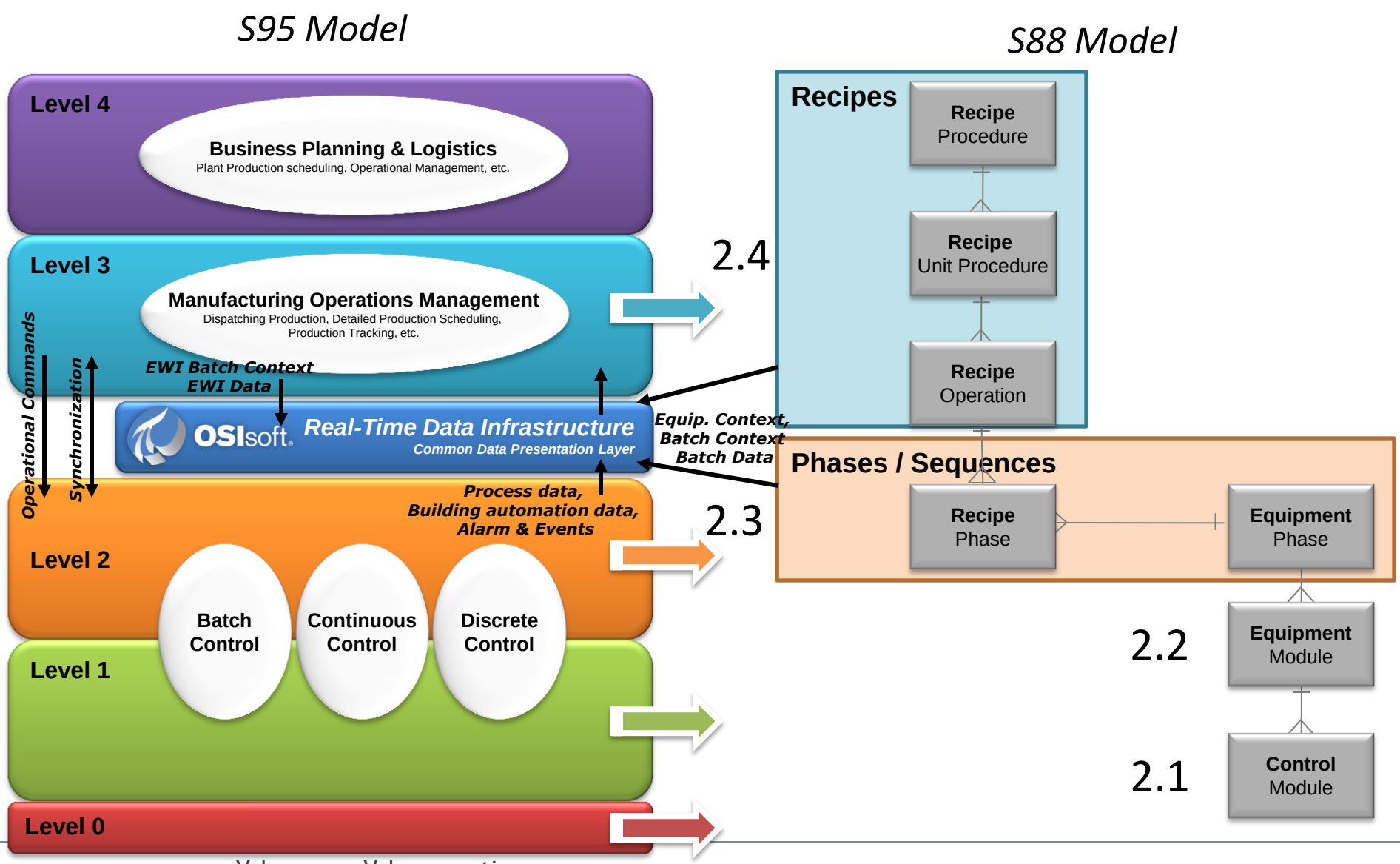

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